

kind a pharmaceutical solution is converted by means of a high pressure of up to 500 bar into an aerosol destined for the lungs, which is sprayed. Within the scope of the present specification reference is expressly made to the entire contents of the literature mentioned above.

Paragraph beginning on page 13, line 29 please amend as follows:

Further details of the construction are disclosed in PCT applications WO 97/12683⁷ and WO 97/20590, to which reference is hereby made and each of which is incorporated herein by reference in their entireties.

In the Claims:

In accordance with 37 C.F.R. § 1.121(c), please amend claims 1, 15, 16, 17, 20, 23, 27, 28, 30, 38, 39 and 50, cancel claims 32-37, and add new claims 53-95 as follows:

1. (Currently Amended) A pharmaceutical preparation comprising:

- (a) an active substance comprising a-tiotropium or a pharmaceutically acceptable salt thereof, in a concentration based on tiotropium of between 0.0005 and 5% by weight;
- (b) a solvent selected from water or a water/ethanol mixture;
- (c) acid for achieving a pH between 2.0 and 4.5; and
- (d) a pharmacologically acceptable preservative,

optionally including a pharmacologically acceptable complexing agent, a stabilizer, a pharmacologically acceptable cosolvent, or other pharmacologically acceptable adjuvants and additives.

2. (Original) The pharmaceutical preparation according to claim 1, wherein the tiotropium salt is a salt formed with HBr, HCl, HI, monomethylsulfuric acid ester, methanesulfonic acid, or *p*-toluenesulfonic acid.

3. (Original) The pharmaceutical preparation according to claim 1, wherein the active substance is tiotropium bromide.
4. (Original) The pharmaceutical preparation according to claim 1, wherein the active substance is tiotropium bromide monohydrate.
5. (Original) The pharmaceutical preparation according to claim 1, wherein the solvent is water.
6. (Original) The pharmaceutical preparation according to claim 2, wherein the solvent is water.
7. (Original) The pharmaceutical preparation according to claim 3, wherein the solvent is water.
8. (Original) The pharmaceutical preparation according to claim 4, wherein the solvent is water.
9. (Original) The pharmaceutical preparation according to claim 1, wherein the solvent is a water-ethanol mixture with up to 70 vol.% of ethanol.
10. (Original) The pharmaceutical preparation according to claim 2, wherein the solvent is a water-ethanol mixture with up to 70 vol.% of ethanol.
11. (Original) The pharmaceutical preparation according to claim 3, wherein the solvent is a water-ethanol mixture with up to 70 vol.% of ethanol.
12. (Original) The pharmaceutical preparation according to claim 4, wherein the solvent is a water-ethanol mixture with up to 70 vol.% of ethanol.
13. (Original) The pharmaceutical preparation according to claim 9, wherein the solvent is a water-ethanol mixture with up to 60 vol.% of ethanol.

14. (Original) The pharmaceutical preparation according to claim 13, wherein the solvent is a water-ethanol mixture with up to 30 vol.% of ethanol.

15. (Currently Amended) The pharmaceutical preparation according to ~~one of claims 1 to 4~~, wherein the pharmaceutical preparation does not contain a complexing agent.

16. (Currently Amended) The pharmaceutical preparation according to ~~one of claims 1 to 4~~, wherein the pharmaceutical preparation does not contain a stabilizer.

17. (Currently Amended) The pharmaceutical preparation according to ~~one of claims 1 to 4~~, wherein the complexing agent comprises edetic acid salt ~~is present in an amount of greater than 0~~ up to 25 mg/100 ml.

18. (Original) The pharmaceutical preparation according to claim 17, wherein edetic acid salt is present in an amount of from 5 to less than 10 mg/100 ml.

19. (Original) The pharmaceutical preparation according to claim 17, wherein the edetic acid salt is sodium edetate.

20. (Currently Amended) The pharmaceutical preparation according to ~~one of claims 1 to 4~~, wherein the pH is between 2.5 and 3.5.

21. (Original) The pharmaceutical preparation according to claim 20, wherein the pH is between 2.7 and 3.3.

22. (Original) The pharmaceutical preparation according to claim 21, wherein the pH is between 2.7 and 3.0.

23. (Currently Amended) The pharmaceutical preparation according to ~~one of claims 1 to 4~~, wherein the concentration based on tiotropium is between 0.001% and 3% by weight.

24. (Original) The pharmaceutical preparation according to claim 23, wherein the concentration based on tiotropium is between 0.0005% to 0.5% by weight.
25. (Original) The pharmaceutical preparation according to claim 24, wherein the concentration based on tiotropium is between 0.0005% to 0.25% by weight.
26. (Original) The pharmaceutical preparation according to claim 25, wherein the concentration based on tiotropium is between 0.001% to 0.1% by weight.
- | 27. (Currently Amended) The pharmaceutical preparation according to ~~one of claims 1 to 4~~, wherein the pharmacologically acceptable preservative is benzalkonium chloride.
- | 28. (Currently Amended) The pharmaceutical preparation according to ~~one of claims 1 to 4~~, wherein the pharmaceutical preparation comprises a pharmacologically acceptable adjuvant or additive.
- | 29. (Original) The pharmaceutical preparation according to claim 28, wherein pharmacologically acceptable adjuvant or additive is an antioxidant.
- | 30. (Currently Amended) The pharmaceutical preparation according to ~~one of claims 1 to 4~~, wherein the pharmaceutical preparation contains no cosolvents and/or pharmacologically acceptable adjuvants and additives apart from the preservative.
31. (Original) A pharmaceutical preparation comprising water, 0.1% by weight of tiotropium bromide, 0.01% by weight of benzalkonium chloride, and 0.05% by weight of sodium edetate, which is adjusted to a pH of 3.0 using hydrochloric acid.

Claims 32-37 (Cancelled)

- | 38. (Currently Amended) A method for administering a pharmaceutical preparation according to ~~one of claims 1 to 4 or 31 to 37~~, comprising nebulizing the pharmaceutical preparation in an inhaler selected from the group consisting of: (a) an inhaler according to the

Weston Nebulizer, WO 91/14468, or (b) an inhaler according to the Jaeger Nebulizer
BFigures 6a and 6b of WO 97/12687.

39. (Currently Amended) A method for administering a pharmaceutical preparation according to ~~one of claims 1 to 4 or 31 to 37~~, comprising nebulizing the pharmaceutical preparation in an inhaler which nebulizes defined amounts of the pharmaceutical preparation by the application of pressures from 100 to 600 bar through a nozzle having at least one nozzle opening with a depth of 2 to 10 microns and a width of 5 to 15 microns to form an inhalable aerosol.

40. (Original) The method according to claim 39, wherein at least one nozzle opening is at least two nozzle openings which are inclined relative to one another in the direction of the nozzle opening at an angle of from 20 degrees to 160 degrees.

41. (Original) The method according to claim 39, wherein the defined amounts of the pharmaceutical preparation are 10 to 50 microliters.

42. (Original) The method according to claim 38, wherein the inhaler is 9 cm to 15 cm long and 2 cm to 4 cm wide.

43. (Original) The method according to claim 39, wherein the inhaler is 9 cm to 15 cm long and 2 cm to 4 cm wide.

44. (Original) The method according to claim 38, wherein the mass of pharmaceutical formulation delivered in at least 97% of all actuations of the inhaler is between 5 mg and 30 mg within a range of tolerance of 25%.

45. (Original) The method according to claim 39, wherein the mass of pharmaceutical formulation delivered in at least 97% of all actuations of the inhaler is between 5 mg and 30 mg within a range of tolerance of 25%.

46. (Original) The method according to claim 38, wherein the mass of pharmaceutical formulation delivered in at least 97% of all actuations of the inhaler is between 5 mg and 30 mg within a range of tolerance of 20%.

47. (Original) The method according to claim 39, wherein the mass of pharmaceutical formulation delivered in at least 97% of all actuations of the inhaler is between 5 mg and 30 mg within a range of tolerance of 20%.

48. (Original) The method according to claim 38, wherein the mass of pharmaceutical formulation delivered in at least 98% of all actuations of the inhaler is between 5 mg and 30 mg within a range of tolerance of 20%.

49. (Original) The method according to claim 39, wherein the mass of pharmaceutical formulation delivered in at least 98% of all actuations of the inhaler is between 5 mg and 30 mg within a range of tolerance of 20%.

50. (Currently Amended) A method of treating asthma or COPD in a patient, the method comprising administering to the patient a pharmaceutical preparation according to one of claims 1 to 14.

51. (Original) A method of treating asthma or COPD in a patient, the method comprising administering to the patient a pharmaceutical preparation using the method of claim 38.

52. (Original) A method of treating asthma or COPD in a patient, the method comprising administering to the patient a pharmaceutical preparation using the method of claim 39.

53. (New) A pharmaceutical preparation comprising:

- (a) an active ingredient consisting essentially of a tiotropium salt, in a concentration based on tiotropium of between 0.0005 and 5% by weight;
- (b) a solvent selected from water or a water/ethanol mixture;

- (c) acid for achieving a pH between 2.0 and 4.5; and
- (d) a pharmacologically acceptable preservative,

optionally including a pharmacologically acceptable complexing agent, stabilizer, a pharmacologically acceptable cosolvent, or other pharmacologically acceptable adjuvants and additives.

54. (New) The pharmaceutical preparation according to claim 53, wherein the tiotropium salt is a salt formed with HBr, HCl, HI, monomethylsulfuric acid ester, methanesulfonic acid, or *p*-toluenesulfonic acid.

55. (New) The pharmaceutical preparation according to claim 53, wherein the tiotropium salt is tiotropium bromide.

56. (New) The pharmaceutical preparation according to claim 53, wherein the tiotropium salt is tiotropium bromide monohydrate.

57. (New) The pharmaceutical preparation according to claim 53, wherein the solvent is water.

58. (New) The pharmaceutical preparation according to claim 54, wherein the solvent is water.

59. (New) The pharmaceutical preparation according to claim 55, wherein the solvent is water.

60. (New) The pharmaceutical preparation according to claim 56, wherein the solvent is water.

61. (New) The pharmaceutical preparation according to claim 53, wherein the solvent is a water-ethanol mixture with up to 70 vol.% of ethanol.

62. (New) The pharmaceutical preparation according to claim 54, wherein the solvent is a water-ethanol mixture with up to 70 vol.% of ethanol.
63. (New) The pharmaceutical preparation according to claim 55, wherein the solvent is a water-ethanol mixture with up to 70 vol.% of ethanol.
64. (New) The pharmaceutical preparation according to claim 56, wherein the solvent is a water-ethanol mixture with up to 70 vol.% of ethanol.
65. (New) The pharmaceutical preparation according to claim 61, wherein the solvent is a water-ethanol mixture with up to 60 vol.% of ethanol.
66. (New) The pharmaceutical preparation according to claim 65, wherein the solvent is a water-ethanol mixture with up to 30 vol.% of ethanol.
67. (New) The pharmaceutical preparation according to claim 53, wherein the pharmaceutical preparation does not contain a complexing agent.
68. (New) The pharmaceutical preparation according to claim 53, wherein the pharmaceutical preparation does not contain a stabilizer.
69. (New) The pharmaceutical preparation according to claim 53, wherein edetic acid salt is present in an amount of up to 25 mg/100 ml.
70. (New) The pharmaceutical preparation according to claim 69, wherein the edetic acid salt is sodium edetate.
71. (New) The pharmaceutical preparation according to claim 53, wherein the pH is between 2.5 and 3.5.
72. (New) The pharmaceutical preparation according to claim 71, wherein the pH is between 2.7 and 3.3.

73. (New) The pharmaceutical preparation according to claim 53, wherein the concentration based on tiotropium is between 0.001% and 3% by weight.

74. (New) The pharmaceutical preparation according to claim 73, wherein the concentration based on tiotropium is between 0.0005% to 0.5% by weight.

75. (New) The pharmaceutical preparation according to claim 74, wherein the concentration based on tiotropium is between 0.0005% to 0.25% by weight.

76. (New) The pharmaceutical preparation according to claim 75, wherein the concentration based on tiotropium is between 0.001% to 0.1% by weight.

77. (New) The pharmaceutical preparation according to claim 53, wherein the pharmacologically acceptable preservative is benzalkonium chloride.

78. (New) The pharmaceutical preparation according to claim 53, wherein the pharmaceutical preparation comprises a pharmacologically acceptable adjuvant or additive.

79. (New) The pharmaceutical preparation according to claim 78, wherein pharmacologically acceptable adjuvant or additive is an antioxidant.

80. (New) The pharmaceutical preparation according to claim 53, wherein the pharmaceutical preparation contains no cosolvents and/or pharmacologically acceptable adjuvants and additives apart from the preservative.

81. (New) A method for administering a pharmaceutical preparation according to claim 53, comprising nebulizing the pharmaceutical preparation in an inhaler selected from the group consisting of: (a) an inhaler according to the Weston Nebulizer, or (b) an inhaler according to the Jaeger Nebulizer B.

82. (New) A method for administering a pharmaceutical preparation according to claim 53, comprising nebulizing the pharmaceutical preparation in an inhaler which nebulizes defined amounts of the pharmaceutical preparation by the application of pressures from 100 to 600

bar through a nozzle having at least one nozzle opening with a depth of 2 to 10 microns and a width of 5 to 15 microns to form an inhalable aerosol.

83. (New) The method according to claim 82, wherein at least one nozzle opening is at least two nozzle openings which are inclined relative to one another in the direction of the nozzle opening at an angle of from 20 degrees to 160 degrees.

84. (New) The method according to claim 82, wherein the defined amounts of the pharmaceutical preparation are 10 to 50 microliters.

85. (New) The method according to claim 81, wherein the inhaler is 9 cm to 15 cm long and 2 cm to 4 cm wide.

86. (New) The method according to claim 82, wherein the inhaler is 9 cm to 15 cm long and 2 cm to 4 cm wide.

87. (New) The method according to claim 81, wherein the mass of pharmaceutical formulation delivered in at least 97% of all actuations of the inhaler is between 5 mg and 30 mg within a range of tolerance of 25%.

88. (New) The method according to claim 82, wherein the mass of pharmaceutical formulation delivered in at least 97% of all actuations of the inhaler is between 5 mg and 30 mg within a range of tolerance of 25%.

89. (New) The method according to claim 81, wherein the mass of pharmaceutical formulation delivered in at least 97% of all actuations of the inhaler is between 5 mg and 30 mg within a range of tolerance of 20%.

90. (New) The method according to claim 82, wherein the mass of pharmaceutical formulation delivered in at least 97% of all actuations of the inhaler is between 5 mg and 30 mg within a range of tolerance of 20%.

91. (New) The method according to claim 81, wherein the mass of pharmaceutical formulation delivered in at least 98% of all actuations of the inhaler is between 5 mg and 30 mg within a range of tolerance of 20%.
92. (New) The method according to claim 82, wherein the mass of pharmaceutical formulation delivered in at least 98% of all actuations of the inhaler is between 5 mg and 30 mg within a range of tolerance of 20%.
93. (New) A method of treating asthma or COPD in a patient, the method comprising administering to the patient a pharmaceutical preparation according to claim 53.
94. (New) A method of treating asthma or COPD in a patient, the method comprising administering to the patient a pharmaceutical preparation using the method of claim 81.
95. (New) A method of treating asthma or COPD in a patient, the method comprising administering to the patient a pharmaceutical preparation using the method of claim 82.